"It's Only a Metaphor!"
Why Evolutionary Biology Is Saturated with Teleological Rhetoric of Intelligent Design

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"What's in a name? That which we call a rose…"

What's in a metaphor? A metaphor is rhetorical device - a word or a phrase - applied to an object or action to which it is not literally applicable. In literary studies, rhetorical studies, semiotics and even in daily life, we see metaphors, allegories, metonymies and similes as powerful tools of expression which help us convey the meaning in a more elaborate, sophisticated or flamboyant fashion. "The sun is rising," we say, "her eyes were shining," "his words cut deep," or "the wind breathed gently across the ocean" – our very reasoning is deeply saturated with symbols and images.

Yet, it is a psychoanalytical power of dissecting metaphors and cracking their secret code that is of interest to us here. Take a figure of speech, dissect it like a scientist dissects a frog in the lab and you will find deeper layers of meaning, scary revelations or hidden gems of truth.

Let me give you an illustration. A psychoanalyst friend of mine once shared with me how he listens for metaphors during his therapy sessions. "I once had a client who constantly kept complaining about being cold. Whatever he was saying, he kept interjecting his speech with the mentions of how cold it was outside and how it was making him feel cold on the inside. I asked him, 'Why do you keep talking about cold?' He paused, thought about it for a moment and finally revealed, 'I guess I am just afraid of getting old...' And this was his liberating moment of truth," – concluded my psychoanalyst friend. This is a mighty illustration of the psychoanalytical interpretative power of metaphor-dissecting - if only we pause to think, if only we stop to reflect on our own use of metaphorical language, we may discover our own deep fears and disturbing realities that we try to escape.

Can we dare to apply this metaphor-dissecting psychoanalysis further, on a grander scale? Can we project it to science, politics, religion, art, music? Will it help us expose psychological defense mechanisms and manipulative techniques that we may have built as a society, as a civilization, as a humanity? Are there deep hidden desires and longings, are there greater truths about the world and ourselves that we are trying to suppress and ignore? If only we pause and think, we will surely discover the range of metaphors in various fields that will give away our hidden motives, fears and desires.

"No Free Lunch": Challenging Scientific Naturalism

One of the deepest human longings, I dare suggest, is a longing for an existential meaning and purpose. But in today's secular universe, under today's scientific worldview, where all existence is nothing but an accidental play of natural forces, there is no "scientific" room for vain imaginations about a grand existential purpose and meaning of the universe, biological life and human life. As Stephen Hawking famously claimed, "It is said that there's no such thing as a free lunch. But the universe is the ultimate free lunch,"[1] – in other words, life is an accidental byproduct of the aloof, dispirited matter and energy. Today's dominant scientific worldview "by default" excludes the notions of the afterlife and spiritual existence beyond the temporal physical form and, thus, eliminates the possibility of the *eternal* meaning and purpose of human existence. Divine predestination and divine guidance are but religious fantasies – there is no intelligent agency behind human history and there is no transcendental purpose for the lives of nations and individuals.

[1] Hawking, Stephen, A *Brief History of Time*, Bantam, 1988, p. 134

And yet, -- ironically – we live the stories of our lives trying to look at the big picture, to see the forest for the trees, and to make a coherent sense of our life journeys as they unfold. Whether we realize it or not, our daily language is inundated with the language of meaning and purpose, and what is even more perplexing — the rhetoric of *telos* (Greek τέλος: "end," "purpose," "goal") arises from the heart of hearts of the secular materialist discourse – scientific naturalism.

Scientific naturalism broadly understood is the dominant worldview in western secular culture that claims that the physical reality experienced via five natural senses is all there is. It is this-worldly, empirical and materialistic. It is the opposite of ontological (metaphysical) idealism as it excludes any non-physical immaterial realities such as God, gods, souls, spirits, intelligible spiritual beings, as well as absolute values, morals, and purposes.

According to J.P. Moreland: "The three major components to naturalism are: 1) scientism — the belief that scientific knowledge is either the only form of knowledge or a vastly superior form of knowledge; 2) the belief that the atomic theory of matter and the theory of evolution explain all events; and 3) the belief that non-physical things don't exist and that the world isn't here for any purpose."[2]

This may be best expressed in the words of Bill Nye – "a celebrity TV science educator, "the Science Guy," [who] likes to say that modern astronomy has revealed the insignificance of humanity. In the last minutes of his 2010 "Humanist of the Year" acceptance speech, Nye [declared]: 'I am insignificant … I am just another speck of sand. And the earth really in the cosmic scheme of things is another speck. And the sun an unremarkable star… and the galaxy is a speck. I am a speck on a speck orbiting a speck among still other specks in the middle of specklessness. I suck."[3]

Of course, secular scientists like Bill Nye do not mean to say that human existence is utterly useless and we should abandon all moral and ethical codes of conduct. We need to play by the rules to survive and preserve social order, we need to find meaning in the here and now and strive to make the best out of this-earthly existence. But atheist scientists do insist that there is no meaning and purpose to our existence in an absolute, eternal, metaphysical sense. Yet, strangely, it only serves to intensity our deep longing for something far beyond ourselves and the universe. In today's spiritual vacuum created by scientific naturalism too many parched souls still search for a transcendental anchor for their hopes and dreams.

Very few of us actually realize today that the presently dominant non-teleological worldview is relatively new. From ancient Greek and Roman philosophy (the teleology of Aristotle, Plato and Cicero), to teleology of Moses Ben Maimon (Maimonides), Thomas Aquinas, Emmanuel Kant, and Isaac Newton to the 19th century teleology embedded in natural theology – for millennia scientific explorations were birthed from, interwoven into and flourished within the range of teleological paradigms of various kinds, all unified by one common denominator – the notion of the intelligent agency that had purposefully planned and designed the universe and us.

It all changed in the mid-19th century with the emergence of the theory of evolution by natural selection, first formulated in by Charles Darwin in his "On the Origin of Species" in 1859. Central to today's scientific naturalism, this theory presupposes that organisms change over time via random mutations, that is, accidental physical processes driven by the law of the survival of the fittest – by "fittest" meaning having the highest chance of surviving in a particular environment. Despite the fact that "On the Origin of Species" did not explain the origin of biological life – and nobody has explained it yet as of today – the idea of the gradual progression of species via natural selection is somehow considered suffice to claim that there is no superior intelligence behind the origin of life – no deity, no Creator God, no master watchmaker. No design, no purpose, no teleological explanation.

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[2] Moreland, J.P., *What Is Scientific Naturalism?* March 4, 2004 https://www.boundless.org/faith/what-is-scientific-naturalism/

[3] Keas, Michael Newton, *Unbelievable: 7 Myths About the History and Future of Science and Religion,* Intercollegiate Studies Institute, 2019, p. 11

"Although atheism might have been logically tenable before Darwin, Darwin made it possible to be an intellectually fulfilled atheist," in the words of Richard Dawkins in his *The Blind Watchmaker: Why the Evidence of Evolution Reveals a Universe without Design* (1986).[4] Since the publication of "On the Origin of Species," we stepped into the new era of scientific naturalism as a meta-ideology and have been living within its academic limits ever since.

And yet, paradoxically, evolutionary literature over the decades since Darwin has been permeated with what the philosopher of biology Elliott Sober calls "the heuristic of personification"[5]: evolutionary biologists simply cannot help but accidentally slip metaphors that personify "evolution" or "nature" as a rational agent. In essence, they simply replaced God with an impersonal secular "deity"; instead of a God the Creator, instead of supreme intelligence, a deified "nature" or "evolution" now runs the show.

"If God did not exist, He would have to be invented. But all nature cries aloud that he does exist: that there is a supreme intelligence, an immense power, an admirable order, and everything teaches us our own dependence on it."[6] These are the words of François-Marie Aroueta Voltaire – a French Enlightenment writer, historian, and philosopher, best known for his critique of Christianity and religious dogma. All nature cries aloud that God does exist – unless a substitute secular idol is invented.

"I am afraid we are not rid of God because we still have faith in grammar," – as Friedrich Nietzsche famously claimed in his *Twilight of the Idols* (1889)[7] more than a century ago. This is a metaphorical way of saying: humans are neurobiologically wired to conceptualize reality in metanarratives and seek a central point of reference. So, no getting rid of God conceptually – unless replace God with a secular "god."

So, what is teleological language in the secular evolutionary discourse?

Let me entertain you here with yet another anecdotal illustration. In 2015, I was on an Antarctic expedition ship, visiting the Antarctic peninsula, the sub-Antarctic island of South Georgia, and the Falkland Islands. While at sea, the expedition members had the opportunity to listen to lectures by scientists and professionals in the fields of marine biology, Antarctic botany and zoology, geology, geophysics, earth science, the science of icebergs and glaciers, and the history of the Antarctic exploration. Some of the most interesting lectures were in marine biology. A young scientist in his late thirties, a self-proclaimed atheist and evolutionist, enthusiastically talked about penguins, seals, dolphins, whales, krill and other Antarctic species. In private conversations with me he would fiercely deny the existence of God or any supernatural agency but during his lectures on the physiology of the Antarctic species he would constantly make teleological "Freudian slips" such as: "It is fascinating how these dolphins (seals, seagulls, krill, whales) are perfectly designed for their environment… These animals are ultimately designed for the purpose they have to perform…" etc.

When confronted – I certainly brought this to his attention – he would simply shrug the above statements off as "mere metaphors." But let me probe again – what is in a metaphor? Can it be that the "mere" metaphors above are symptomatic of a much deeper underlying problem with the theory of evolution?

Indeed, evolutionary literature abounds with teleological or teleology-invoking examples; below are just a few "historical and recent examples of teleological claims" from *The Stanford Encyclopedia of Philosophy*:

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[4] Dawkins, Richard, *The Blind Watchmaker: Why the Evidence of Evolution Reveals a Universe without Design,* Norton & Company, Inc, 1986, p. 6

[5] Sober, Elliott, *The Nature of Selection: Evolutionary Theory in Philosophical Focus*, MIT Press, 1984, p. 193

[6] Besterman, T. (ed.), *Voltaire's Correspondence*, vol. 77, Geneva, 1962, p. 119-120

[7] Kaufmann, Walter, (ed.), *The Portable Nietzsche,* "Twilight of the Idols," Penguin, 1982, p. 483

> The chief function of the heart is the transmission and pumping of the blood through the arteries to the extremities of the body. (Harvey 1616 [1928: 49])
>
> The Predator Detection hypothesis remains the strongest candidate for the function of stotting [by gazelles]. (Caro 1986: 663)
>
> The geographic range of human malaria is much wider than the range of the sickle-cell gene. As it happens, other antimalarial genes take over the protective function of the sickle-cell gene in … other warm parts. (Diamond 1994: 83)
>
> Despite the substantial amount of data we now have on theropod dinosaurs, more information is necessary in order to determine the likelihood that early feathers served an adaptive function in visual display as opposed to other proposed adaptive functions such as thermoregulation. (Dimond et al. 2011: 62)[8]

The list of teleology-invoking problems in biology is obviously much greater but, as mentioned above, my immediate concern right now is with the rhetorical analysis of teleological "Freudian slips" in evolutionary discourses.

To illustrate my point, let me demonstrate one example of the scientific attempt to explain the origin of human consciousness – more specifically a certain "byproduct" of human consciousness – mystical spiritual experiences in humans from the evolutionary perspective and offer my rhetorical analysis of this explanation.

First, how do neuroscientists explain the emergence of mystical experiences in the brain? They reduce it to the biology of the brain. The authors of *Why God Won't Go Away* (2002) – Andrew Newberg, Eugene D'Aquili, and Vince Rause – have studied the brainwaves of meditating Buddhists and Franciscan nuns with the help of high-tech brain-scanning devices and discovered that the mystical experiences of their experimental subjects were manifested in the brain as a series of observable neurological events. This brought them to the conclusion that "mystical experience is biologically, observably, and scientifically real…spiritual experience, at its very root, is intimately interwoven with human biology."[9] Newberg and d'Aquili use a neuroscientific term of *deafferentiation* to describe the spiritual experiences of their experimental subjects. These include feelings of unity with the universe, a sense of being absorbed into divinity, sensations of "infinite sublimity," "the sense of timelessness and spacelessness in prayer and meditation," "communion with the universe," "hyperlucid unitary consciousness," "the dissolving of boundaries between the self and God, gods, universe," "being consumed by the presence of God, Jesus, Mary, or any other religious agency," etcetera. Newberg and d'Aquili argue that all neurological phenomena of *deafferentiation* emerge as a result of the suppression of the orientation association area (henceforth, OAA) in the brain during meditation. The OAA in the superior parietal lobe is responsible for our physical spatial orientation, the control of bodily motions, and the consistent awareness of the physical limits of the self – basically, neuroscientists believe that OAA is precisely what creates a coherent sense of self in humans. When a coherent sense of self is suppressed during meditation – they claim – a meditating individual naturally experiences a feeling of oneness with God or the universe.

These and other mystical experiences – neuroscientists believe – may have arisen as by-products of sexual evolution in humans:

> We believe the neurological machinery of transcendence may have arisen from the neural circuitry that evolved for mating and sexual experience… Scientists think the quiescent and limbic systems evolved partly to link sexual activity to the pleasurable experience of orgasm, with obvious evolutionary benefits.

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[8] *Stanford Encyclopedia of Philosophy*, https://plato.stanford.edu/entries/teleology-biology/

[9] Newberg, A., D'Aquili, E., Rause, V., *Why God Won't Go Away: Brain Science and the Biology of Belief*, Random House Publishing, 2002, p. 7

> Components of the limbic system are involved in the deafferentation process. … Sex and prayer are obviously not the same experience… Neurologically they are quite different, but "mystical prayer and sexual bliss use similar neural pathways.[10]

Now, let me attempt a rhetorical analysis of the above evolutionary narrative.

"We believe the neurological machinery of transcendence may have arisen from the neural circuitry that evolved for mating and sexual experience" - this story is nothing new. Has not Sigmund Freud already suggested the idea that humans tend to sublimate sexual instincts into more "civilized" and "sophisticated" forms of activities, including religious activities? Now, let's turn the tables: maybe it be the spiritual energy that human beings do not recognize in themselves and mistakenly sublimate into sexual energy? Can it be that it is spiritual hunger and longing for ultimate intimacy (do I dare say "God's love"?) that amplifies human sexual urges and prompts some particular individuals toward promiscuous bed-hopping? … Etc.

Putting irony aside, the real problem with the above insinuation by Rich Heffern lies far deeper. "Scientists think the quiescent and limbic systems evolved partly to link sexual activity to the pleasurable experience of orgasm, with obvious evolutionary benefits." This plays right into the hands of a *quasi-religious* notion of evolution as a supra-natural metaphysical agency, capable of consciously planning the course of its development. How and why would evolution – presumably impersonal and non-purposive – recognize teleological significance of reproduction and logically trace beneficial effects of pleasure on reproduction? This, of course, assuming that evolution by natural selection happens on the sub molecular level – not on the rational scheme of things.

And if evolution is indeed reproduction-driven, then why would it refract physical pleasures of orgasm into something as useless and ephemeral as mystical experience? What a waste of time and energy! Why would evolution bring us to pray rather than seek out more sex and orgasms?

Finally, does the fact that mystical experiences utilize "*similar* neural pathways" [my emphasis] as those of sexual pleasure really prove that the "neurological machinery of transcendence" evolved from the experience of orgasm? Not to mention that spiritual experiences are not always pleasure-grounded. On the contrary, they often produce negative emotions of inner conflict, agony, and emotional frustration rather than bliss, exaltation and peace. In fact, some occultists, New Age followers and even Buddhists report "seeing demons" or experiencing uncontrollable irrational fears during transcendental meditation. Other spiritual experiences entail ascetic self-destruction and even communal self-destruction as evident in some extremist religious cults… What neural pathways do they utilize when they do so? …

This is just one example but what sounds most ironic to me here is that while neuroscientists are trying to explain away "the mind" (consciousness, mystical experience) in evolutionary terms, they cannot help but use teleological language and inadvertently imply that evolution is almost mind-driven (end-goal driven).

A Secular Guide to Self-Censoring Teleological Urges in the Academia

So, let me emphasize again: could it be that my Antarctic marine scientist atheist friend's constant involuntary references to "design" could have actually been indicative of his deeply suppressed teleological intuitions and the unconscious longing for recognizing an agency in nature? Too many evolutionary biologists make such "Freudian slips" when talking about evolution as if it were a rational agent with a plan and an end purpose in mind. So much so that the entire school of thought emerged in the philosophy of science in the 20th century

[10] Heffern, Rich, "Exploring the Biology of Religious Experience," *National Catholic Reporter,* Vol. 37, Issue 25, 2001, p. 14

called "teleology in biology" in order to tackle the problem of the language of goal-directedness in evolutionary biology.

Many admit that teleology is "a recurring issue in evolutionary biology"[11] and find it deeply disturbing and challenging to the materialist worldview. "Teleological statements are explanatorily robust in biology," admits Stephen Asma in "Teleology Rises from the Grave," *Philosophy Now* (2018).[12] "The problem of how to understand the use of teleological concepts in the life sciences is one of the most widely and controversially debated problems in contemporary philosophy of biology," points out Angela Breitenbach in "Teleology in Biology: A Kantian Perspective," *Kant Yearbook* (2009).[13]

What is fascinating, however, is that the tooth-and claw battle over teleology in biology has largely been happening not on the scientific but on the rhetorical level as it has been a battle over semantics and definitions. Stephen Asma, for example, in his "Teleology Rises from the Grave," argues that secular biologists often misunderstand the term "telos" and should be better educated in teleology *as a philosophy* in order to be better equipped to fight off any references to "divine design or occult prescient forces."[14]

Others, too, try to reword teleology to explain away the appearance of design in nature in materialistic terms. And, as they do so, they often resort to rhetorical exercises, sophisms and circular reasoning.

Thus, Richard T. O'Grady in "Evolutionary Theory and Teleology," *Journal of Theoretical Biology* (1984) claims: "Initial attempts to discover a cause for an observed effect are often teleological, in that the end-state achieved (the effect) is incorporated into the explanation of how that state came about (the cause). This usually results from a lack of knowledge of the mechanistic causal factors responsible. Some intellectual attitudes, such as those that recognize supernatural agents, will be contingent with such teleology. A scientific attitude, however, tries to go beyond this precursive stage to explanations with greater causal explanatory power (see Hempel, 1965; Nagel, 1977). It follows that the theories formulated to achieve this goal should be maximally capable of distinguishing cause and effect."[15]

Ernst Mayr in his "The Idea of Teleology," *Journal of the History of Ideas* (1992) also rhetorically turns cause and effect upside down: "adaptedness ... is an *a posteriori* result rather than an *a priori* goal-seeking."[16]

Larry Wright in his *Teleological Explanation* (1976) claims that teleological concepts in science are "dead anthropomorphic metaphors."[17] And on and on.

Why play these rhetorical games of turning cause and effect upside down or redefining the terms in order to so desperately fight off any insinuations about the possibility of design and purpose in nature?

Because if we look at the strikingly complex and marvelous living organisms which stunningly perfectly fit into their respective environments, we cannot help but wonder how this could have possibly happened by pure chance

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[11] Ruse, Michael; Travis, J. (eds.), *Evolution: The First Four Billion Years*, The Belknap Press of Harvard University Press, 2009, p. 364

[12] Asma, Stephen, "Teleology Rises from the Grave," *Philosophy Now*, 2018, https://philosophynow.org/issues/126/Teleology_Rises_from_the_Grave

[13] Breitenbach, Angela, "Teleology in Biology: A Kantian Perspective," *Kant Yearbook,* 2009 (1): 31–56, p. 32

[14] Asma, Ibid.

[15] O'Grady, Richard T., "Evolutionary Theory and Teleology," *Journal of Theoretical Biology* 107, 1984, p. 563-578

[16] Mayr, Ernst W., "The Idea of Teleology," *Journal of the History of Ideas* 53(1), 1992, p. 117-135

[17] Wright, Larry, *Teleological Explanation,* Berkeley, 1976, p. 21

by undirected forces of nature. When we look at a car or a helicopter, it will never occur to us to suggest that these complicated mechanisms appeared by natural processes. How much more complex are a dragonfly and a beetle, a fish and a bird. Organic biological "machines" are million times, billion times more intricate and complicated than any human inventions. *And* they reproduce.

It is hard not to succumb to the temptation to think that biological organisms are more than mere accidental whims of nature when looking, for example, at moth *macrocilix maia* (see image 1,2,3,4) which proudly displays an image of "two flies sipping from bird poop" on its wings in order to repel potential bird predators. If only we pause and think, if only we stop to contemplate, we would realize that an impersonal "random mutation natural selection mechanism" would have to have a pretty damn good observatory and analytical power to come up with such mischievous strategy purely by accident.

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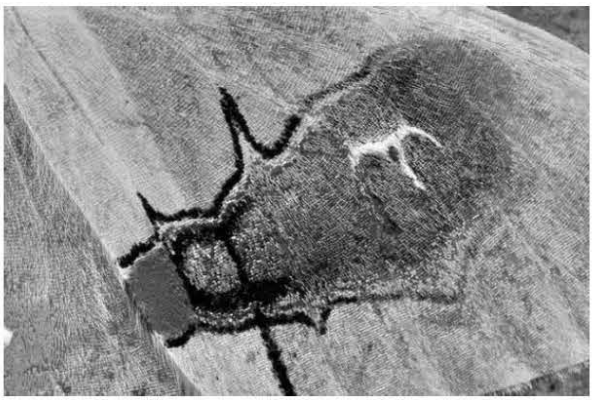

(4)

Or when we read about carrion flowers that "mimic the scent and appearance of rotting flesh to attract necrophagous (carrion-feeding) insects like flesh flies (Sarcophagidae), blowflies (Calliphoridae), house flies (Muscidae) and some beetles (e.g., Dermestidae and Silphidae) which search for dead animals to use as brood sites. The decaying smell of the flower comes from oligosulfides, decayed proteins that contain amino acids

methionine and cysteine. … The nectar acts as a lure to bring the insects closer to the reproductive parts of the flower."[18] Again, it has to be pretty damn lucky serendipitous chain of mutations for carrion flowers: to come up with the scent of – not just anything – but of rotting flesh to attract just the right kind of insects straight to the reproductive parts of the flower. I could go on and on infinitely with numerous examples of the mysterious power of evolution to accidentally come up with intricate biological functions in particular organisms that involve a complex matrix of environmental networks connecting a plethora of organisms.

All of this "luck" is particularly intriguing given the most recent scientific discoveries in molecular biology and genetics.

Let's consider random mutations that supposedly drive organisms to better adapt to the environment and ultimately evolve into new species. First, mutations may or may not produce discernible changes in the observable characteristics (phenotype) of an organism. Most mutations are harmful, like cancer or autoimmune diseases. If you are pregnant with a child and your doctor tells you that your baby is having a genetic mutation, you probably would not be too excited about it. A mutation is an alteration of the original pattern, or let me say teleologically: it is a *distortion of the original design*. If you are pregnant, you will probably want your child to adhere to the "original design" of a human baby – not a genetic mutant.

In addition, beneficial mutations that actually help organisms adapt to the environment are extremely rare.[19]

Finally, there is also what we call "a combinatorial problem in biology." In mathematics the term combinatorial refers to the number of possible ways that a set of objects can be arranged or combined. In genetics the combinatorial problem poses a great challenge to the random mutation natural selection mechanism. Recent experiences in molecular biology and protein science demonstrated that DNA base sequences, capable of producing functional proteins, are extremely rare among the large number of possible sequences. A molecular biologist Douglas Axe at the University of Cambridge demonstrated that, for each DNA sequence that generated a functional protein of only 150 amino acids in length, there would be the amount of 10^{77} of amino acids that did not bend in a stable three-dimensional protein structure capable of performing that biological function. One correct sequence for every 10^{77} incorrect sequences. This is equivalent to finding a correct combination of a block with 10 numbers in each of the 77 markers! To put this in perspective keep in mind that there are only 10^{65} atoms in the entire galaxy of the Milky Way. Can random genetic mutations actually perform a search in such a large space of possibilities, to the point of finding a single functional protein sequence? – asks Axe. Throughout the 3,500-million-year history of life on Earth, it is estimated that only 10^{40} of individual organisms have already lived. However, 10^{40} represents only a small fraction of 10^{77}. Only one-tenth of a trillionth of a trillionth of a trillionth, to be exact. In other words, even for a single functional protein folding to arise, the mutation and selection mechanism would have time to have investigated only a small fraction of the total number of relevant sequences. A tenth of a trillionth of a trillionth of a trillionth of the total possibilities. It follows that it is very likely that a random mutational search would have failed to produce even a new functional protein folding throughout the history of life on Earth.[20]

With these statistics in mind, now, let us try to imagine that all living organisms on earth not only accidentally appeared from non-organic matter, not only accidentally evolved into various species, but also accidentally developed the most intricate mutual interconnected relationship of which animal and plant mimicry is just one example.

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[18] Johnson, Steven D., "Carrion Flowers," *Current Biology,* 2016, 26 (13): 556–R558

[19] Behe, Michael, J., *The Edge of Evolution, The Search for the Limits of Darwinism*, Free Press, New York, 2007

[20] Axe, Douglas D., "Estimating the Prevalence of Protein Sequences Adopting Functional Enzyme Folds," *Journal of Molecular Biology* 341, no. 5, 2004: pp. 1295–1315, https://doi.org/10.1016/j.jmb.2004.06.058

Fred Hoyle, a self-proclaimed atheist astrophysicist, puts it into perspective in his *The Intelligent Universe: A New View of Creation and Evolution* (1983): "Now imagine 1050 blind each with a scrambled Rubik cube and try to conceive of the chance of them all simultaneously arriving at the solved form. You then have the chance of arriving by random shuffling of just one of the many biopolymers on which life depends. The notion that not only the biopolymers but the operating program of a living cell could be arrived at by chance in a primordial soup here on earth is evidently nonsense of a high order."[21]

Again, what is wrong with us? When we look at the Mount Rushmore or the ruins of Machu Picchu, at a NASA spaceship or a primitive tool of an ancient tribe – we immediately recognize that all these creations were scrupulously planned, designed and fashioned by an intelligent agent. But when we look at the most artistically beautiful biological organisms – birds of paradise or butterflies – we (and by "we" here I mean conventional secular science adherents) have to so fiercely deny the very possibility that there might be superior intelligence of some kind behind this cosmic drama?

But scientific naturalism is merciless. Intuitively, the appearance of design in nature is undeniable. But if you are a scientist today you cannot afford the luxury to operate in teleological terms – you should fight this urge against all your natural instincts.

And as teleology "rises from the grave" – in the words of Stephen Asma – you have to rush to exterminate it, suffocate it, ridicule it, kill it. Step on its ugly head.

"Darwin killed the design argument," – claims Asma – his theory of chance variation and natural selection drove a stake through its heart. Rather, the accumulation and spread of heritable traits by the mechanical operations of genes, proteins, geology, climate, and so on, slowly shape organisms to fit their environments, making them *appear* designed. In philosophical jargon, Darwin changed a priori design – God's plan – into a posteriori adaptation. Excellent popular-science postmortems of natural theology include Richard Dawkins' *Blind Watchmaker*, Daniel Dennett's *Darwin's Dangerous Idea*, and Jerry Coyne's *Why Evolution is True*."[22]

So, the ultimate rhetorical strategy to debunk teleology in biology today is to say that organisms *only appear* designed.

This "appearance of design" – apparently! – is so great, so powerful that a new philosophical term, "teleonomy" was coined by Colin Pittendrigh back in 1958 to convey the idea that while biological organisms overwhelmingly *appear* designed in reality it is just an illusion. Teleonomy is the quality of apparent purposefulness and of goal-directedness of structures and functions in living organisms brought about by unguided impersonal laws. The term derives from the Greek "τελεονομία" compound of two Greek words, τέλειο *teleio* ("perfect") and νόμος *nomos* ("law"), and means "perfect law," "designed to be perfect."[23]

Secular scientists today join in a chorus mantra: *appear* to be designed, *only appear* to be designed…

Nobel Prize in Physiology or Medicine winner, molecular biologist Francis Crick – an outspoken atheist: "Biologists must constantly keep in mind that what they see was not designed, but rather evolved," *What Mad Pursuit: A Personal View of Scientific Discovery* (1990).[24]

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[21] Hoyle, Fred, *The Intelligent Universe: A New View of Creation and Evolution,* Michael Joseph Ltd., 1983

[22] Asma, Ibid.

[23] Pittendrigh, Colin S., Roe, A.; Simpson, George Gaylord (eds.), *Adaptation, Natural Selection, and Behavior. Behavior and Evolution*, New Haven: Yale University Press, 1958, pp. 390–416

[24] Crick, Francis, *What Mad Pursuit: A Personal View of Scientific Discovery*, Basic Books, 1990, p. 138

Michael Ruse, an atheist philosopher of science: "Organisms appear as if designed."[25] In "Teleology: Yesterday, Today, and Tomorrow?" *Studies in the History and Philosophy of Biological and Biomedical Sciences* 31(2000).

This can be best expressed in the words of J. B. S. Haldane: "Teleology is like a mistress to a biologist: he cannot live without her but he's unwilling to be seen with her in public."[26]

What an exhausting, exhausting battle – driving away teleology by all means. To avoid a professional suicide (loss of a job, loss of a tenure, loss of a reputation), scientists at secular academic institutions today have to vow to scientific naturalism and purge their language of teleological metaphors at any cost.

Still, some of the outspokenly atheist scientists, like the aforementioned Nobel-prize nominated astrophysicist Fred Hoyle –"one of the most distinguished and controversial scientists of the 20th century,"[27] - did not hesitate to debunk "the Gospel according to Darwin" (in his own words) as a "superstition" and suggest that: "A common sense interpretation of the facts suggests that a super-intellect has monkeyed with physics, as well as with chemistry and biology, and that there are no blind forces worth speaking about in nature." "The Universe: Past and Present Reflections," *Engineering and Science* (1981).[28]

And he is *not* alone.

An Intellectual Multiverse of Scientific Paradigms – A Dream?

Now, here would be a good place to demonstrate that metaphysical teleology has never actually gone to the grave and to introduce the great body of scholarship – I dare say *excellent scholarship* – that has been conducted over decades since Darwin by world-class scientists at top universities (including many Nobel Prize winners) in the fields of Intelligent Design and the fine-tuning of the universe. But before we can explore endless possibilities that these alternative scientific paradigms entail, the first step is to continue challenging scientific naturalism as a dominant *ideology* in the academia today. There is no real reason why science should be dominated by atheism – atheism as an ideology or as a personal belief. There is no real reason why science should be presented to the public only by Richard Dawkins, Daniel Dennetts, Jerry Coynes and Bill Nyes.

As demonstrated above, the secular fight to drive teleology away from science is not played out on the level of the scientific debate – it is a rhetorical promotion of a secular ideology. And as long as there is a dogmatic domination of one ideology over all others, we are all losers in this battle. Where is the diversity of ideas, where is intellectual honesty and humility, where is a creative tension between the clashing worldviews producing powerful exchange of ideas? …

It is lonely in a secular universe dominated by the one and only "party line" in the academia. I am longing for a pluralism of ideas, for an open dialogue between worldviews, for intellectual freedom to explore the impossible. Only thus, I believe, we together – atheists and religious believers, materialists and idealists, scientists and philosophers – can create a truly stimulating intellectual multiverse, where science will thrive like never before

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[25] Ruse, Michael, "Teleology: Yesterday, Today, and Tomorrow?" *Studies in the History and Philosophy of Biological and Biomedical Sciences* 31, pp. 213-232, p. 230

[26] Mayr, Ernst, *Boston Studies in the Philosophy of Science*, Volume XIV, 1974, pp. 91–117

[27] "Obituary: Professor Sir Fred Hoyle," Science, *The Guardian,* https://www.theguardian.com/news/2001/aug/23/guardianobituaries.spaceexploration

[28] Hoyle, Fred, "The Universe: Past and Present Reflections," *Engineering and Science*, 1981, pp. 8-12.

unrestrained by delimiting ideologies. And this day will come, I believe, when we all will quit rhetorical games and disingenuous tricks and will learn to use metaphors with integrity.

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